

REMARKSTelephone Interviews

Applicants thank the Examiner for the telephone interviews conducted on February 6, 2003, and May 15, 2003. In the telephone conference of February 6, 2003, Examiner Dong and the undersigned attorney discussed the subject matter of the claims. In this conversation, the subject matter of Claims 1-41 and 44-45 was elected for examination. In the telephone conference of May 15, 2003, Examiner Dong, Examiner O'Shea, and the undersigned attorney discussed the differences between the elected claims and the cited art. At the conclusion of the meeting, it was determined that none of the cited art discloses or suggests a semiconductor device having a cathode, anode, and grid, wherein the cathode is arranged to form an air gap for providing a thermal barrier around the cathode. The claims having this feature will be allowable, but contingent on an additional search. Additional differences between the claimed subject matter and the cited references were discussed.

Introduction

Applicants respectfully request that the above-identified patent application be reexamined and reconsidered. Claims 1-45 are now pending in this application. In an Office Action dated February 26, 2003 (hereinafter "Office Action"), it was suggested that Claims 42 and 43 be canceled as drawn to non-elected matter. To expedite the prosecution of Claims 1-41, 44, and 45, applicants hereby cancel Claims 42 and 43 in this application, without prejudice, for further prosecution of these canceled claims in a divisional application. Pursuant to 37 C.F.R. § 1.111, and for the reasons set forth below, applicants respectfully request reconsideration and allowance of this application.

The Office Action rejected Claims 1-6, 19, 21-26, 28, 30-35, 37, 39-40, and 44-45 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,124,671 to Fushimi et al.

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(hereinafter "Fushimi") in view of U.S. Patent No. 5,847,496 to Nakamoto et al. (hereinafter "Nakamoto"), and in further view of U.S. Patent No. 5,892,323 to Zimmerman (hereinafter "Zimmerman"). As discussed in the most recent Examiner's interview, none of the cited art discloses or suggests the claimed subject matter. Specifically, none of the cited references disclose or suggest a structure comprising "a substrate having a cavity extending from at least one into a surface of the substrate" and "a cathode having an electron-emitting coating disposed thereon, wherein the cathode is suspended near the opening of the cavity in the substrate, wherein the cathode and the cavity are configured to form an air gap between the substrate and the cathode for providing a thermal barrier around the cathode..." As amended, Claims 1, 39, and 44 include these claimed features. As concluded in the most recent Examiner's interview, none of the cited references disclose or suggest the invention defined in Claims 1, 39 and 44. For at least the above reasons, applicants request allowance of Claims 1, 39 and 44 and their respective dependent claims. Applicants also submit that these amendments do not add new matter as this claimed subject matter is disclosed in many sections of the specification, including page 3, paragraph 3 and page 10, paragraph 1.

With regard to Claims 21-38, applicants respectfully submit that the subject matter completely fails to suggest applicants' claimed invention. For instance, Claim 21 claims a device having a combination of components, including the combination of:

a first grid forming at least one aperture configured for allowing the passage of electrons therethrough, wherein the first grid is constructed of an electrically conductive material, wherein the first grid is positioned between the first and second member;

a second grid forming at least one aperture configured for allowing the passage of electrons therethrough, wherein the second grid is constructed of an electrically conductive material, wherein the second grid is positioned between the first and second member...

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As distinctly claimed, applicants claim a structure that contains TWO grid structures positioned between the first member (cathode) and the second member (anode). Applicants request that the Examiner refer to FIGURE 7 of applicants' specification to see one example of this claimed embodiment. As previously discussed, the undersigned respectfully submits that none of the cited references teach, disclose or suggest this claimed feature. Moreover, none of the cited references, alone or in combination, suggest a structure having two grids, as claimed above, positioned between a cathode and anode. Therefore, for at least these reasons, applicants request the allowance of Claim 21 and its dependent claims.

With respect to Claim 30, applicants claim another embodiment having three grid elements. Specifically, applicants claim a device having a combination of components, including the combination of:

- a first grid forming at least one aperture configured for allowing the passage of electrons therethrough, wherein the first grid is constructed of an electrically conductive material, wherein the first grid is positioned between the first and second member;

- a second grid forming at least one aperture configured for allowing the passage of electrons therethrough, wherein the second grid is constructed of an electrically conductive material, wherein the second grid is positioned between the first and second member;

- a third grid forming at least one aperture configured for allowing the passage of electrons therethrough, wherein the second grid is constructed of an electrically conductive material, wherein the third grid is positioned between the first and second member...

As distinctly claimed, applicants claim a structure that contains THREE grid structures positioned between the first member (cathode) and the second member (anode). Applicants request that the Examiner refer to FIGURE 8 of applicants' specification to see one example of this claimed embodiment. As outlined above, applicants submit that the cited references fail to teach, disclose or suggest a circuit structure having two grid elements. Following that argument,

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applicants submit that it is more apparent that the cited references fail to disclose any structure that remotely suggests a circuit having three grid elements positioned between an anode and cathode. Thus, for at least these reasons, applicants request the allowance of Claim 30 and its dependent claims.

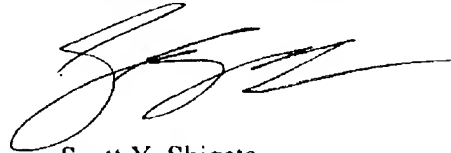
### CONCLUSION

In view of the foregoing remarks, it is submitted that the present application is now in condition for allowance. Reconsideration of this application and allowance of the claims are solicited. If the Examiner has any questions or comments regarding this matter, the Examiner is invited to contact applicants' undersigned attorney at the number below.

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Respectfully submitted,

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